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ABSTRACT

The pedagogical development of teachers has been described in five stages: novice, advanced beginner, competent, proficient, and expert. This study sought to determine if a survey instrument called the Method Acceptance Scale for Teachers (MAST) would be useful in revealing differences among teachers in different stages of development with regard to their instructional decision making. The MAST uses a 4-point scale for teachers to self-report the criteria that they feel are most important to them when they make instructional decisions. Administration of the MAST questionnaire to 120 preservice teachers and 768 practicing classroom teachers revealed differences among teachers having varying years of experience. Comparison of MAST responses of 87 expert teachers with the responses of experienced nonexpert teachers indicated that expert teachers rated two factors higher than experienced nonexpert teachers: enhancing student understanding and motivation, and compatibility of the instruction to their own philosophy and experience of success. Experienced teachers rated colleague support and external approval from peers, parents, and administrators higher than did expert teachers. The paper concludes that there may be quantitative differences between expert teachers and nonexperts with 15 or more years of experience, and that the MAST questionnaire shows promise in being able to reveal differences among teachers. (Contains 15 references.) (JDD)

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DIFFERENTIATING THE EXPERT AND EXPERIENCED TEACHER: QUANTITATIVE DIFFERENCES IN INSTRUCTIONAL DECISION MAKING

by

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INTRODUCTION

Picture these teachers in your mind as I describe them:

Teacher 1: The children and teacher are on the playground. Recess is proceeding as usual. The bell rings at the same instant that a water main breaks in the street alongside of the playground. Water makes a geyser shooting up in the middle of the street. People emerge from their homes as emergency vehicles arrive. The teacher tells the children to ignore it and return to the classroom immediately to continue the lessons that were planned for the day.

Teacher 2: The same situation has occurred and the teacher allows the children to watch for a while, addresses a few questions as well as she* can, then she and the children return to the classroom to resume the day's agenda.

Teacher 3: Following the same erupting geyser, the students and teacher sit on the playground observing the events that follow. The teacher draws the students' attention to the evidences of physical forces at work. The role of community service personnel are discussed. The teacher asks the children to predict what will happen in the homes around the break when the families try to take a bath, and to infer the traffic pattern for buses when they return that afternoon. Upon returning to the classroom, the children break into groups to research the question that most interests them about the event. Each succeeding day the students take a "field trip" to the playground to check on the progress of the repairs and update their journal on "The Explosion Outside Our School."

These descriptions illustrate three teachers whom you probably know or whom you have observed in your professional career. I, too, know these teachers and have questioned why

teachers such as these approach the same situation so differently. What has happened or has not happened to these three teachers to cause such diverse reactions to the same potential learning situation? These questions have motivated me to examine the theories of teacher development in an effort to gain insights into these teacher's professional lives.

The theory of Pedagogical Development developed by David Berliner (1988) has held special fascination for me. He describes the pedagogical development of teachers in five stages: Novice, Advanced Beginner, Competent, Proficient, and Expert. His research and that of his colleagues Pamela Stein, Donna Sabers, Pamela Clarridge, Katherine Cushing, & Stefinee Pinnegar (1988; Carter, Sabers, Cushing, Pinnegar, & Berliner, 1987), and the subsequent research of Hilda Borko and Carol Livingston (1989; Livingston & Borko, 1989, 1990) are eloquent in their descriptions of the stages of teacher development . Most of us with experience in education read this research and can recall an Expert teacher who is seamless in her delivery and routine, seemingly arational (Berliner, 1988) in her thinking. Likewise, we have observed preservice teachers in a student teaching situation who teach a lesson with little attention to what is occurring in the classroom environment or to what the students are saying (Westerman, 1991) such as was illustrated in Teacher 1.

We, as teacher educators, have begun to question what happens to change this Novice who cannot unravel a relatively simple teaching situation into the Expert who has a mental schema developed to the point that only the unusual requires attention. How does a teacher develop into one who flows with the classroom dynamics with seemingly little overt effort as we saw in Teacher 3 (Westerman, 1991)? We have begun to question what we can do to expedite the growth of our young teachers through the stages of development. Does expertise presuppose a

certain number of years of experience? Does it require a special kind of nurturing which teacher educators and school administrators can provide to facilitate a teacher's growth and development?

These questions seem almost overwhelming when looked at from a qualitative point of view. What are the components of "seamless"? What differences occurred in the thinking of the three teachers faced with the exploding water main that caused such different reactions? My aim is not to criticize the qualitative research of previous researchers. On the contrary, without these descriptions and theories we would have difficulty in beginning to differentiate quantitatively among the stages of development. As Lee Shulman (1988) tells us, "Ways of seeing are ways of knowing and of not knowing. And knowing well is knowing in more than a single way" (p. 23).

It is on the shoulders of these giants that I began my research. Today I will share with you some data that I have collected in pilot studies conducted in advance of my dissertation work. These data have been collected over a three year period. No hard claims can be made to date, but the data give glimmers of exciting possibilities; there may well be quantitative differences among teachers who are in different stages of pedagogical development.

This pilot research was conducted to determine if the survey instrument, the Method Acceptance Scale for Teachers (MAST), would be useful in revealing differences among teachers in different stages of development with regard to their instructional decision making. The first pilot examined differences in reported instructional decision making criteria among teachers in groups based on their years of teaching experience. The second pilot addressed differences among groups of nominated expert teachers and those with 16 or more years of teaching experience.

Theoretical Basis

The research is based on David Berliner's Developmental Stage theory, which consists of five stages that he has been describing and defining since the mid-1980's. These stages and a few defining characteristics are described in the Table 1 below (Berliner, 1987, 1988, in press).

Table 1

Berliner's Pedagogical Development Stages

Novice
- Deliberate
- Applies context-free rules
- Minimum application of skills
- Gaining procedural knowledge and experiences

Advanced Beginner
- Insightful
- Beginning to recognize similarities across contexts
- Developing strategic knowledge
- Still unable to differentiate what is important
- Blames actions on external factors

Competent
- Rational
- Makes conscious choices about what to do
- Sets priorities based on experiential knowledge
- Makes instructional decisions within a specific context
- Takes personal responsibility for classroom results

Proficient
- Intuitive
- Recognizes similarities within differing situations
- Predicts events more precisely
- Analytic and deliberative

Expert
- Arational and Intuitive
- Non-analytical and non-deliberative
- Fluid and seamless

Berliner's research has focused on developing descriptions of teachers within these stages in terms of their classroom processes, interpretations of classroom events, attention to feedback from classroom occurrences as it affects immediate decision making, and the schema development of teachers. My research differs in that it focuses on the thoughts of a teacher as she makes instructional decisions. Specifically, do teachers in different stages of pedagogical development use varying criteria as they make instructional decisions?

Instrumentation

To begin to answer this question, teachers were surveyed about their decision making using a survey, the Method Acceptance Scale for Teachers (MAST), developed by Gary House (1988, 1992). This 45 question survey delineates nine criteria which teachers reported that they use when making instructional decisions (Table 2). The MAST uses a 4-point scale for teachers to self-report the criteria that they feel are most important to them when they make instructional decisions. The scale ranges from 1-4, with choice 1 corresponding to entirely irrelevant; choice 2, somewhat irrelevant; choice 3, somewhat relevant, and choice 4, entirely relevant.

PILOT I: TEST OF STAGES BASED ON YEARS OF EXPERIENCE

In 1991, I administered the MAST questionnaire to 120 preservice teachers in three teacher education institutions in the St. Louis area: a private, liberal arts college; a large state institution; and a metropolitan teacher training institution. These results were compared with those previously obtained during the validation of the MAST instrument from 768 practicing classroom teachers from across the nation. The means for each factor as reported by the preservice teachers were compared to those from experienced teachers who were grouped according to their years of

Table 2

MAST Criteria and Descriptions

Formal Student Outcomes **(FSO)**

The teacher would choose this factor if improving student homework, aptitude test scores, standardized achievement test scores, and scores on locally constructed or teacher made tests is relevant.

Informal Student Outcomes **(ISO)**

The teacher would choose this factor if enhancing student understanding, enhancing student enjoyment, motivating student interest, or improving class work is relevant

Teacher Enjoyment **(TE)**

The teacher would choose this factor if affecting a renewal in the teacher, enhancing the desire to teach, or teacher enjoyment from teaching that particular content or using that strategy is relevant.

Teacher Compatibility **(TC)**

The teacher would choose this factor if compatibility with teacher's style, role, beliefs, and values, and the teacher's perceived self competence is relevant.

Career Enhancement **(CE)**

The teacher would choose this factor if increasing benefits to career, such as increasing pay, job security, enhancing professional reputation, and improving teacher evaluation is relevant.

Approval **(AP)**

The teacher would choose this factor if external approval from principals, peers, school boards, parents, and central administrators is relevant.

Colleague Support **(CS)**

The teacher would choose this factor if colleague familiarity, use of instruction, or collegial contact or influence is relevant.

Fate Control **(FC)**

The teacher would choose this factor if the degree of teacher control, such as effort and time requirement, is relevant.

Concept Reputation **(CR)**

The teacher would choose this factor if reputation of the instructional method, support from research, support for implementation, and successful implementation is relevant.

teaching experience. Although Berliner (1988) warned that this was an imprecise way to assign developmental stage, to this date little research had been completed to indicate more accurate groupings. Berliner's descriptions were used to identify the groups with the exception of the expert group. Previous research by others (Berliner, et al., 1988; Borko & Livingston, 1989; Carter, et al., 1987; Livingston & Borko, 1989, 1990; Peterson & Comeaux, 1987; Van der Mars, et al., 1991), who had more closely conformed to Berliner's guidelines in the definition of stages, had shown little differences between Competent, Proficient, and Expert. To account for this, I redefined the Expert group, from five years of experience for Expert to 15 years of experience, in order to eliminate the potential mix of stages which may be found in years six through 15.

Group 1, Novice, was composed of preservice teachers; Group 2, Advanced Beginners were teachers with 1 year of experience; Group 3; Competent, had 2-3 years of experience; Group 4, Proficient, had 4-5 years of experience; and Group 5, Expert, had 16 or more years of experience.

The means of the responses between groups were compared using a multivariate analysis of variance. Results for these groups show significant differences between means in all levels of experience using the MAST questionnaire (Table 3). The highest F value occurred in the ISO factor with preservice teachers ranking it slightly above somewhat irrelevant and Expert teachers ranking it very close to entirely relevant, their highest ranked factor.

It is interesting to note in examining the means for preservice teachers that they report means approaching relevance only on Career Enhancement. All other factors rank below 2.5. These young preservice teachers seem to indicate a lack of understanding of what is important when making instructional decisions.

Table 3

Means for Factors by Experience Groups

Factor	Group 1 (Preservice)	Group 2 (1 year)	Group 3 (2-3 years)	Group 4 (4-5 years)	Group 5 (>16 years)	F*
ISO	2.1820	3.792	3.758	3.700	3.735	239.79
TE	2.351	3.361	3.399	3.282	3.440	99.93
TC	2.402	3.306	3.258	3.117	3.305	74.84
AP	1.696	3.010	3.072	2.863	2.742	79.08
FSO	2.330	2.493	2.808	2.409	2.759	8.81
CR	1.711	2.657	2.651	2.667	2.719	63.77
CS	1.420	2.620	2.628	2.625	2.514	87.57
FC	1.727	2.417	2.631	2.400	2.511	29.18
CE	2.548	1.958	2.216	1.856	1.902	12.05

*$p<.01$ for all factors

Table 4 shows a ranking of relevance of the factors for each of the groups. The most relevant factors reported by all inservice groups are ISO, TC, and TE. Likewise, CE falls as one of the lowest two factors for the groups of practicing teacher, perhaps indicating that the teacher is not concerned about enhancing her career as she makes instructional decisions. It is interesting to note that the ranking for the Approval factor seems to increase dramatically once a teacher begins teaching (Preservice M=1.696; year one M=3.010). Mean values for Approval begin to decline in relevance, as the teacher gains experience, while holding the same relative position for teachers with one to five years of teaching. It never returns to the irrelevance reported by those preservice teachers.

Of lowest significance reported by most groups are Fate Control and Career Enhancement. Most groups rank these factors mostly irrelevant in their decision making.

Table 4

Ranks of Factor by Groups

Rank	Group 1 Preservice	Group 2 1 year	Group 3 2-3 years	Group 4 4-5 years	Group 5 > 15 years
1	CE	ISO	ISO	ISO	ISO
2	TC	TE	TE	TE	TE
3	TE	TC	TC	TC	TC
4	FSO	AP	AP	AP	FSO
5	ISO	CR	FSO	CR	AP
6	FC	CS	CR	CS	CR
7	CR	FSO	CS	FSO	CS
8	AP	FC	FC	FC	FC
9	CS	CE	CE	CE	CE

PILOT II: EXPERTISE VS. EXPERIENCE

The pilot study just described shows differences among teachers having varying years of experience, but does not explore differences among teachers with regard to their pedagogical development. I began to search for a way to refine the identification of expert teachers based upon the previous research by Berliner and others. I contacted a school district in the St. Louis area that many educators believe to be selective in its teacher hiring process, and that is considered by area teachers to be a desirable place to teach. The curriculum coordinators nominated Expert teachers within the district. Nominators reported using the following criteria in their determination of expertise: has knowledge of content, has the ability to work with all students, is nurturing, takes risks, is respectful, is interested in student's needs, participates in continuing professional growth, is self-confident and reflective, adjusts the context to the learners, is slow to close the learning process, makes multiple concept connections, enthusiastic, uses teachable moments, uses a variety of strategies, has good classroom management, and acknowledges own lack of

knowledge. These factors reflect Berliner's findings regarding the Expert teacher's flexibility and reflectivity.

The MAST questionnaire was distributed to those teachers by mail. Of the 99 teachers nominated, 87 returned the MAST.

Results

The Expert teachers nominated had an average of 20 years of teaching experience. The means of their responses for each factor of the MAST were compared to the means of teachers with 16 or more years of experience from my previous study. Even though this Experienced group of teachers most likely contained Expert teachers, and that the data was collected at different times and at different locales, four factors still showed statistical differences (Table 5).

Expert teachers seem to give the most importance to informal student outcomes, how much the instructional strategy is compatible with the teacher, and how much the teacher will enjoy implementing it. Experts are not concerned with making instructional decisions based upon how much the administration, community, or school board will approve; on colleague support for the strategy or curriculum; or on how much the decision will enhance their careers.

When comparing these data to that previously collected from teachers with 16 or more years of experience, the group from which we would expect to draw Expert teachers, significant differences in means were found on the factors of ISO, TC, CS, and AP. Expert teachers rated ISO and TC significantly higher than Experienced teachers and they rated CS and AP significantly lower than Experienced teachers. Statistical measures show these Expert teachers to be more concerned with student enjoyment while learning and the compatibility of the instruction to their own philosophy and experiences of success in the classrooms in the past. They also report to be

less concerned than Experienced teachers with approval from external sources and from collegial support in implementing this instruction.

Table 5

Means of MAST Factors for Experienced and Expert Teachers

Factors	Experienced Means (SD)	Expert Means (SD)	t
ISO	3.707 (0.348)	3.878 (0.171)	3.11*
TC	3.281 (0.498)	3.561 (0.320)	4.67*
TE	3.366 (0.555)	3.495 (0.448)	1.45
CR	2.734 (0.647)	2.790 (0.508)	.51
FSO	2.807 (0.834)	2.756 (0.720)	.37
FC	2.511 (0.772)	2.590 (0.457)	.94
AP	2.785 (0.678)	2.366 (0.691)	3.30*
CS	2.543 (0.666)	2.195 (0.526)	3.16*
CE	1.842 (0.674)	2.005 (0.635)	1.43

$p<.05$

Practical Considerations

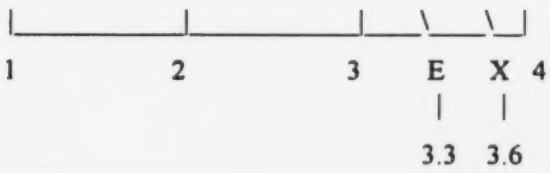
Although statistical differences were found in these four factors, in examining everyday practice of these two groups, a slight variation in interpretation must be made. Both Experienced and Expert teachers rated the ISO factor very close to Entirely Relevant. The statistical differences found in this factor do not seem to indicate a practical difference in how they view this most important criteria for instruction. Both consider it to be a major concern.

For the other three factors, the practical differences are more apparent. Teacher Compatibility, though being a little more than somewhat relevant to the Experienced teacher, approaches Entirely Relevant to the Expert.

E = Experienced

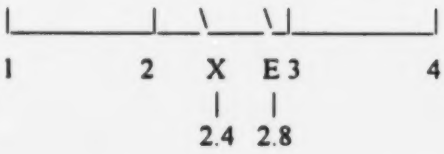
X = Expert

Teacher Compatibility



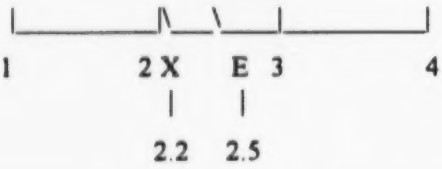
Approval, though falling within the irrelevant scale for Experts, approaches relevance for the Experienced teacher.

Approval



Likewise, Colleague Support approaches relevance for Experienced teachers while in the irrelevant range for Experts.

Colleague Support



Emerging from this preliminary data is a picture of the Expert teacher whose decision making process is centered within herself. She does not look for approval from colleagues, the administration, or community for determining what type of instruction will take place in her classroom. She chooses content and methods compatible with her values and beliefs about her role as a teacher. She is more likely to choose a type of instruction about which she feels competent. Foremost in her thoughts, however, is how this instruction will motivate students and enhance student understanding and enjoyment.

These data are beginning to show differences similar to those found by Berliner and his associates. Experts may, indeed, "...perceive meaningful patterns..." (Berliner, in press, p. 51) differently than others within that domain. Emphasis on the Teacher Compatibility factor may indicate that this instructional strategy matches the schema of this particular Expert within this particular domain of her expertise. The low ranking by the Expert of Colleague Support and Approval reinforces this implication. Outside influences seem to be significantly less relevant to the Expert than to the Experienced teacher.

The Experienced teacher does not seem to have made the transition away from need for external input into her instructional decisions. She may be more open to new types of instruction

than the Expert, but may adopt them based upon a decision from an external source rather than from her own internal decision making.

The MAST questionnaire holds promise in being able to reveal differences among teachers with varying years of experience with regard to the criteria reported to be used in instructional decision making. Likewise, it may be able to differentiate among experienced teachers and nominated expert teachers.

LIMITATIONS

There are limitations in generalizing these results.

1. The data were collected over a period of several years and the samples represent different populations, especially the preservice data as compared to that from practicing teachers.

2. The preservice and Expert samples were from a specific geographical area and may not represent Novices or Experts in general.

Despite these limitations, the size of the samples may indicate that there may well be differences in the way teachers in various stages of pedagogical development begin to think about instruction. Its promise calls for further study which is currently being undertaken.

IMPLICATIONS

The implications of this research speak to several areas, most specifically to the preparation of teachers. If quantitative differences can be documented in teachers in various stages of development, it may become easier for teacher preparation programs and inservice efforts to identify stages and work to enhance movement from one stage to the next. However, we are cautioned by Penelope Peterson and Michelle Comeaux (1987) that the whole may be greater than the sum of the parts. Even if these components are identified precisely, we may only be able to

make our students aware of them and facilitate their development over time. We may not be able to be teach these components to our students.

As we are developing reflective practitioners, a focus of the reflection for our students could be that of systematic decision making. Interactions of preservice teachers with practicing teachers during practicum experiences could include discussions of the criteria used by cooperating teachers as they make instructional decisions (Huling-Austin, 1992). Higher education faculty could use these criteria as a basis of discussions during seminars in order to assist students in personally constructing the criteria most often used by teachers in higher levels of pedagogical development. Awareness may be a vital step in the development of certain factors in students.

CONCLUSION

In conclusion, this preliminary data is indicating that there may be quantitative differences between Expert teachers and non-experts with 15 or more years of experience. These differences may be found in the type and frequency of the criteria teachers use to make instructional decisions. This data, used as a supplement to previous qualitative studies, may assist educators in more accurately identifying teachers in various stages of pedagogical development. The identification may enable us to more effectively facilitate the growth of our students toward progressively higher stages of development as they teach today's children.

*The feminine pronoun is used throughout for convenience. I should be assumed that the masculine as well as the feminine pronoun is equally appropriate.

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